



NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

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To: All North Carolina Clinicians and Laboratorians
From: Zack Moore, MD, MPH, State Epidemiologist
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Subject: Enhanced Surveillance and Testing for Novel and Variant Influenza (3 pages)
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North Carolina clinicians and laboratories play a critical role in detecting infections with novel or variant influenza viruses that could have pandemic potential. This memo provides NC Division of Public Health (NC DPH) guidance to providers and clinics for enhanced influenza surveillance and testing for novel or variant influenza viruses*.

Background Novel influenza A(H5N1)

On April 1, 2024, the [United States Department of Agriculture's \(USDA\) Animal and Plant Health Inspection Services \(APHIS\)](#) confirmed detection of a novel influenza A(H5N1) highly pathogenic avian influenza (HPAI)** in dairy cows. Novel influenza A(H5N1) has subsequently been detected in dairy cows from multiple other states [including North Carolina](#).

Novel influenza A(H5N1) viruses continue to circulate among wild birds, with associated outbreaks among poultry and backyard flocks. Since 2022 novel influenza A(H5N1) has also been identified in [over 20 species of mammal](#). [NCDA&CS](#) provides regular updates on HPAI virus detections in North Carolina.

Bird flu viruses do not normally infect humans, although sporadic human infections have occurred, including [cases in the United States](#) following exposure to infected dairy cows. While the Centers for Disease Control and Prevention (CDC) consider the current risk to the general public to be low, some groups of people with job-related or recreational exposures to birds, dairy cattle, or other H5 virus-infected animals, are at greater risk of infection.

Clinical Presentation

There have been sporadic cases of novel and variant influenza infection in people. The clinical presentation of human infection varies considerably, from mild illness, including fever, cough and/or conjunctivitis; to severe illness, including pneumonia and acute respiratory distress syndrome (ARDS).

When to Test

NC DPH is requesting your assistance with enhanced influenza surveillance and testing of individuals with compatible illness by following the algorithm below (page 3).

- Ask patients with flu-like illness about contact with livestock, poultry, sick or dead wild animals, or raw milk or dairy products within the 10 days before symptom onset
- Collect influenza samples for symptomatic individuals with relevant exposures or severe disease (requiring hospitalization or ICU care) or for influenza-related deaths

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AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER

- For high-risk individuals with exposure to an animal known or presumed to have HPAI infection, immediately contact the local health department or the state Communicable Disease Branch (919-733-3419; available 24/7) to discuss control measures, testing and treatment.

Enhanced Surveillance Laboratory Testing

Acceptable surveillance specimens include upper respiratory specimen (nasopharyngeal or nasal swabs) and oropharyngeal swabs in viral transport media (VTM). NCSLPH is currently validating universal transport media (UTM) for this testing and will update guidance once UTM is an acceptable specimen type.

- NCSLPH recommends laboratories store residual influenza specimens at $\leq -70^{\circ}\text{C}$ for enhanced surveillance purposes. These frozen specimens can be tested >72 hours after collection and must be shipped to NCSLPH frozen on dry ice.
- Alternatively, specimens may be stored at $2-8^{\circ}\text{C}$ for receipt at NCSLPH <72 hours after collection. Specimens received <72 hours after collection must be shipped on frozen ice packs and received cold ($2-8^{\circ}\text{C}$).
- NCSLPH clinical specimen [storage](#) guidance should be followed.
- Each specimen must include a completed [virology test requisition](#).
- A subset of specimens will be forwarded to CDC for additional characterization.

Weekly aggregate subtyping results can be found on the [NC DHHS respiratory dashboard](#) under “Influenza Positive Tests”.

Diagnostic Laboratory Testing for Individuals with Known HPAI Exposures

The following guidance is provided for general reference. Prior approval for testing is required. Clinicians should contact the Epidemiologist on Call at 919-733-3421 to discuss a specific patient displaying clinically compatible symptoms with known HPAI exposure. Laboratories should contact the BTEP Duty Phone at 919-807-8600 to coordinate specimen collection and submission to NCSLPH. Specimens should be obtained for novel or variant influenza testing as soon as possible after illness onset.

- Follow NCSLPH clinical specimen [submission](#) guidance for patients with suspected infection with a novel or variant influenza virus. All swab specimens collected should be placed in viral transport media (VTM). NCSLPH is currently validating universal transport media (UTM) for this testing and will update guidance once UTM is an acceptable specimen type.
 - Patient with respiratory symptoms only:
 - VTM vial 1: Nasopharyngeal (NP) swab
 - VTM vial 2: Oropharyngeal swab AND nasal swab
 - Patient with conjunctivitis:
 - VTM vial 1: Conjunctival swab
 - VTM vial 2: NP swab
- Specimens should be stored at $2-8^{\circ}\text{C}$ for immediate shipment to the North Carolina State Laboratory of Public Health (SLPH). Specimens received <72 hours after collection must be shipped on frozen ice packs and received cold ($2-8^{\circ}\text{C}$).
- Specimens must be frozen at $\leq -70^{\circ}\text{C}$ for storage longer than 72 hours. Specimens received >72 hours after collection must be shipped frozen on dry ice.

For questions contact the local health department or the state Communicable Disease Branch (919-733-3419; available 24/7) or for non-urgent questions email ILINet@dhhs.nc.gov.

*Novel and variant influenza viruses refer to influenza viruses that normally circulate in animals, primarily birds (novel) and swine (variant), and which are different from currently circulating seasonal human influenza viruses. While most novel and variant influenza viruses do not transmit easily from animal to human or between humans, genetic mutation or reassortment can lead to transmission between humans as happened with the influenza A(H1N1) virus in 2009. For this reason, early detection of novel and variant viruses that infect humans is important.

**Highly pathogenic avian influenza (HPAI) refers to influenza viruses that result in severe illness in birds.

Additional Resources

- [CDC Strategy for Enhanced Summer 2024 Influenza Surveillance](#)
- [H5N1 Bird Flu: Current Situation Summary](#)
- [Brief Summary for Clinicians: Evaluating and Managing Patients Exposed to Birds Infected with Avian Influenza A Viruses of Public Health Concern](#)

Testing Algorithm

